

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A multiple-mode dielectric resonator comprising:

a conductive cavity;

a dielectric core ~~that is~~ disposed in a the conductive cavity so as to be separated by a predetermined distance from a surface of at least one inside wall defining the cavity, ~~wherein a through hole is formed in the dielectric core~~ including a through hole; and

at least one support bar is inserted into the through hole, the at least one support bar being ~~and is~~ secured to the cavity[[,]] so that the dielectric core is supported in the cavity.

2. (Currently amended) The multiple-mode dielectric resonator according to Claim 1, wherein ~~said the~~ the at least one support bar is conductive, and both ends of ~~said the~~ the at least one support bar are electrically connected to opposing inside walls of ~~said at least one inside wall defining~~ the cavity[[,]] so that a short circuit is produced between the opposing inside walls.

3. (Currently amended) The multiple-mode dielectric resonator according to Claim 2, wherein an insulating bushing is disposed between an ~~inside wall defining an~~ inner surface of the through hole and ~~said the~~ the at least one support bar.

4. (Original) The multiple-mode dielectric resonator according to Claim 3, wherein the bushing is formed of a material whose dielectric constant is lower than that of the dielectric core.

5. (Currently amended) The multiple-mode dielectric resonator according to Claim 1 ~~any one of Claims 1 to 4~~, wherein the cavity has a rectangular parallelepiped

form, ~~said the dielectric resonator includes~~ at least ~~one support bar comprises two or three support bars~~, and both ends of each support bar are joined to different pairs of opposing inside walls of ~~said at least one inside wall defining~~ the cavity.

6. (Currently amended) The multiple-mode dielectric resonator according to Claim 1 ~~any one of Claims 1 to 5~~, wherein the dielectric core has a substantially rectangular parallelepiped form.

7. (Currently amended) The multiple-mode dielectric resonator according to Claim 1 ~~any one of Claims 1 to 6~~, wherein at least a portion of ~~said the~~ at least one support bar is formed of a dielectric material whose dielectric constant is lower than that of the dielectric core.

8. (Currently amended) The multiple-mode dielectric resonator according to Claim 1 ~~any one of Claims 1 to 7~~, wherein ~~said the~~ at least one support bar ~~has a~~ is hollow and is formed of a material whose dielectric constant is lower than that of the dielectric core, and a conductor is disposed in the hollow support bar.

9. (Currently amended) The multiple-mode dielectric resonator according to Claim 1 ~~any one of Claims 1 to 8~~, wherein the through hole and ~~said the~~ at least one support bar each have a polygonal form in cross section.

10. (Currently amended) The multiple-mode dielectric resonator according to Claim 1 ~~any one of Claims 1 to 9, which is a TE triplex mode resonator in which~~ wherein excitation occurs at three TE₀₁ delta modes in which electric field vectors, ~~respectively~~, pass around ~~three axes~~, an X axis, a Y axis, and a Z axis, where the X, Y, and Z axes are coordinate axes that are orthogonal to each other.

11. (Currently amended) A dielectric filter comprising:
the multiple-mode dielectric resonator of Claim 1 ~~any one of Claims 1 to 10;~~
and
an external coupling ~~means for~~ externally coupling to a predetermined mode
of the multiple-mode dielectric resonator.

12. (Currently amended) A communication device comprising; ~~wherein~~
a high frequency circuit including the multiple-mode dielectric resonator of
Claim 1 ~~any one of Claims 1 to 10 or the dielectric filter of Claim 11 is provided at a~~
~~high frequency circuit.~~

13. (New) The multiple-mode dielectric resonator according to Claim 1,
wherein the cavity has a rectangular parallelepiped form, the dielectric resonator
includes at least three support bars, and both ends of each support bar are joined to
different pairs of opposing inside walls of the cavity.

14. (New) The multiple-mode dielectric resonator according to Claim 1,
wherein the dielectric core is substantially spherical.

15. (New) The multiple-mode dielectric resonator according to Claim 1,
wherein the dielectric core is cylindrical.

16. (New) The multiple-mode dielectric resonator according to Claim 1,
wherein the dielectric core is in the form of a block having respective surfaces defined
by a plane perpendicular and parallel to an X-Y plane.

17. (New) The multiple-mode dielectric resonator according to Claim 8,
wherein the conductor is a conductive film formed on an inside surface of the hollow
support bar.

18. (New) The multiple-mode dielectric resonator according to Claim 8,
wherein the conductor is a conductive bar inserted into the hollow support bar.

19. (New) A communication device comprising:
a high frequency circuit including the dielectric filter of Claim 11.